Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1.   (Currently Amended) A computer-implemented method for filtering an image including a plurality of pixels, the method comprising:

receiving a forward kernel centered at a first pixel in the image, the forward kernel assigning forward weights to pixels in a neighborhood surrounding the first pixel;

specifying a backward kernel centered at a second pixel within the neighborhood surrounding the first pixel based on a local attribute of the image at the second pixel, the backward kernel assigning backward weights to pixels in a neighborhood surrounding the second pixel;

determining a first convolution weight of the second pixel based on the backward kernel and the forward kernel, wherein determining the first convolution weight of the second pixel includes,

determining a forward weight assigned to the second pixel by the forward kernel,

determining a backward weight assigned to the first pixel by the backward kernel, and

using the forward weight and the backward weight to determine the first convolution weight of the second pixel by multiplying the forward weight and the backward weight; and

using the first convolution weight and a pixel value of the second pixel to generate a new value of the first pixel.

2.   (Cancelled).

3.   (Cancelled).

4.   (Currently Amended) The method of claim $\underline{1}$ [[2]], wherein:

determining the first convolution weight of the second pixel includes setting a value of the first convolution weight to the smaller of the forward weight and the backward weight.

5.   (Currently Amended) The method of claim 1, wherein:

determining the first convolution weight of the second pixel includes specifying a substantially zero value for the first convolution weight of the second pixel if the backward kernel assigns a substantially zero backward weight to the first pixel.

6.   (Currently Amended) The method of claim 1, wherein:

determining the first convolution weight of the second pixel includes specifying a substantially non-zero value for the first convolution weight of the second pixel if the backward kernel assigns a substantially non-zero backward weight to the first pixel.

7.   (Currently Amended) The method of claim 6, wherein the non-zero value for the first convolution weight of the second pixel is a predetermined value.

8.   (Currently Amended) The method of claim 6, wherein the non-zero value for the first convolution weight of the second pixel is a forward weight assigned to the second pixel by the forward kernel.

9.   (Original) The method of claim 1, wherein the local attribute of the image at the second pixel is a depth value corresponding to a distance of an object represented by the second pixel relative to a focal distance.

10.   (Original) The method of claim 9, further comprising:

receiving user input specifying a depth map assigning a depth value to each pixel in the image.

11.   (Original) The method of claim 1, wherein the local attribute of the image at the second pixel is a luminance value.

12. (Original) The method of claim 1, wherein:

the received forward kernel is operable to blur the image at the first pixel.

13. (Original) The method of claim 12, wherein:

the specified backward kernel is operable to blur the image at the second pixel.

14. (Original) The method of claim 1, wherein:

the received forward kernel is operable to sharpen the image at the first pixel.

15. (Original) The method of claim 1, wherein:

receiving the forward kernel centered at the first pixel includes receiving an array of forward weights, each forward weight in the array being assigned to a pixel in the neighborhood surrounding the first pixel.

16. (Original) The method of claim 1, wherein:

receiving the forward kernel centered at the first pixel includes receiving a kernel function having a kernel location at the first pixel and specifying a forward weight to each pixel in the neighborhood surrounding the first pixel based on a distance between the kernel location and the pixel in the neighborhood.

17. (Original) The method of claim 16, wherein:

the kernel function depends on a kernel radius; and

specifying the backward kernel centered at the second pixel includes determining a kernel radius based on the local attribute of the image at the second pixel and specifying the backward kernel by the kernel function with the determined kernel radius and a kernel location at the second pixel.

18. (Currently Amended) The method of claim 1, further comprising:

specifying one or more further backward kernels, each of the further backward kernels being centered at a corresponding further pixel within the neighborhood surrounding the first pixel and assigning backward weights to pixels in a neighborhood surrounding the corresponding

further pixel, each of the further backward kernels being based on a local attribute of the image
at the corresponding further pixel;

determining a <u>second</u> convolution weight of each further pixel based on the
corresponding backward kernel and the forward kernel; and

using the <u>second</u> convolution weight and a pixel value of each further pixel to generate
the new value of the first pixel.

19.   (Original) A computer-implemented method for depth of field filtering an image
including a plurality of pixels, the method comprising:

specifying a plurality of forward kernels, each of the forward kernels being centered at a
corresponding center pixel in the plurality of pixels and being based on a depth value assigned to
the corresponding center pixel;

for each of the forward kernels, determining convolution weights of neighborhood pixels
within a neighborhood surrounding the center pixel of the forward kernel, each neighborhood
pixel's convolution weight being determined based on the forward kernel and a backward kernel
that is centered at the neighborhood pixel and is based on a depth value assigned to the
neighborhood pixel; and

blurring the image at each center pixel of the forward kernels using the convolution
weights and pixel values of the neighborhood pixels within the neighborhood surrounding the
center pixel.

20.   (Currently Amended) A software product, tangibly embodied in a machine-
readable medium, for filtering an image including a plurality of pixels, the software product
comprising instructions operable to cause one or more data processing apparatus to perform
operations comprising:

receiving a forward kernel centered at a first pixel in the image, the forward kernel
assigning forward weights to pixels in a neighborhood surrounding the first pixel;

specifying a backward kernel centered at a second pixel within the neighborhood
surrounding the first pixel based on a local attribute of the image at the second pixel, the

backward kernel assigning backward weights to pixels in a neighborhood surrounding the second pixel;

determining a first convolution weight of the second pixel based on the backward kernel and the forward kernel, wherein determining the convolution weight of the second pixel includes,

determining a forward weight assigned to the second pixel by the forward kernel,

determining a backward weight assigned to the first pixel by the backward kernel, and

using the forward weight and the backward weight to determine the first convolution weight of the second pixel by multiplying the forward weight and the backward weight; and

using the first convolution weight and a pixel value of the second pixel to generate a new value of the first pixel.

21.   (Cancelled).

22.   (Cancelled).

23.   (Currently Amended) The software product of claim 20 [[21]], wherein:

determining the first convolution weight of the second pixel includes setting a value of the first convolution weight to the smaller of the forward weight and the backward weight.

24.   (Currently Amended) The software product of claim 20, wherein:

determining the first convolution weight of the second pixel includes specifying a substantially zero value for the first convolution weight of the second pixel if the backward kernel assigns a substantially zero backward weight to the first pixel.

25.   (Currently Amended) The software product of claim 20, wherein:

determining the first convolution weight of the second pixel includes specifying a substantially non-zero value for the first convolution weight of the second pixel if the backward kernel assigns a substantially non-zero backward weight to the first pixel.

26. (Currently Amended) The software product of claim 25, wherein the non-zero value for the <u>first</u> convolution weight of the second pixel is a predetermined value.

27. (Currently Amended) The software product of claim 25, wherein the non-zero value for the <u>first</u> convolution weight of the second pixel is a forward weight assigned to the second pixel by the forward kernel.

28. (Original) The software product of claim 20, wherein the local attribute of the image at the second pixel is a depth value corresponding to a distance of an object represented by the second pixel relative to a focal distance.

29. (Original) The software product of claim 28, further comprising instructions operable to cause one or more data processing apparatus to perform operations comprising:
receiving user input specifying a depth map assigning a depth value to each pixel in the image.

30. (Original) The software product of claim 20, wherein the local attribute of the image at the second pixel is a luminance value.

31. (Original) The software product of claim 20, wherein:
the received forward kernel is operable to blur the image at the first pixel.

32. (Original) The software product of claim 31, wherein:
the specified backward kernel is operable to blur the image at the second pixel.

33. (Original) The software product of claim 20, wherein:
the received forward kernel is operable to sharpen the image at the first pixel.

34. (Original) The software product of claim 20, wherein:
receiving the forward kernel centered at the first pixel includes receiving an array of forward weights, each forward weight in the array being assigned to a pixel in the neighborhood surrounding the first pixel.

35.   (Original) The software product of claim 20, wherein:

receiving the forward kernel centered at the first pixel includes receiving a kernel function having a kernel location at the first pixel and specifying a forward weight to each pixel in the neighborhood surrounding the first pixel based on a distance between the kernel location and the pixel in the neighborhood.

36.   (Original) The software product of claim 35, wherein:

the kernel function depends on a kernel radius; and

specifying the backward kernel centered at the second pixel includes determining a kernel radius based on the local attribute of the image at the second pixel and specifying the backward kernel by the kernel function with the determined kernel radius and a kernel location at the second pixel.

37.   (Currently Amended) The software product of claim 20, further comprising instructions operable to cause one or more data processing apparatus to perform operations comprising:

specifying one or more further backward kernels, each of the further backward kernels being centered at a corresponding further pixel within the neighborhood surrounding the first pixel and assigning backward weights to pixels in a neighborhood surrounding the corresponding further pixel, each of the further backward kernels being based on a local attribute of the image at the corresponding further pixel;

determining a second convolution weight of each further pixel based on the corresponding backward kernel and the forward kernel; and

using the second convolution weight and a pixel value of each further pixel to generate the new value of the first pixel.

38.   (Original) A software product, tangibly embodied in a machine-readable medium, for depth of field filtering an image including a plurality of pixels, the software product comprising instructions operable to cause one or more data processing apparatus to perform operations comprising:

specifying a plurality of forward kernels, each of the forward kernels being centered at a corresponding center pixel in the plurality of pixels and being based on a depth value assigned to the corresponding center pixel;

for each of the forward kernels, determining convolution weights of neighborhood pixels within a neighborhood surrounding the center pixel of the forward kernel, each neighborhood pixel's convolution weight being determined based on the forward kernel and a backward kernel that is centered at the neighborhood pixel and is based on a depth value assigned to the neighborhood pixel; and

blurring the image at each center pixel of the forward kernels using the convolution weights and pixel values of the neighborhood pixels within the neighborhood surrounding the center pixel.

39. (New) A system for filtering an image including a plurality of pixels, the system comprising:

a filter configured to:

receive a forward kernel centered at a first pixel in the image, the forward kernel assigning forward weights to pixels in a neighborhood surrounding the first pixel;

specify a backward kernel centered at a second pixel within the neighborhood surrounding the first pixel based on a local attribute of the image at the second pixel, the backward kernel assigning backward weights to pixels in a neighborhood surrounding the second pixel;

determine a first convolution weight of the second pixel based on the backward kernel and the forward kernel, wherein to determine the first convolution weight of the second pixel, the filter is further configured to,

determine a forward weight assigned to the second pixel by the forward kernel,

determine a backward weight assigned to the first pixel by the backward kernel, and

use the forward weight and the backward weight to determine the first

convolution weight of the second pixel by multiplying the forward weight and the backward weight; and

use the first convolution weight and a pixel value of the second pixel to generate a new value of the first pixel.

40.   (New) The system of claim of claim 39, wherein the first convolution weight of the second pixel is determined by setting a value of the first convolution weight to the smaller of the forward weight and the backward weight.

41.   (New) The system of claim of claim 39, wherein the first convolution weight of the second pixel is determined by specifying a substantially zero value for the first convolution weight of the second pixel if the backward kernel assigns a substantially zero backward weight to the first pixel.

42.   (New) The system of claim of claim 39, wherein the first convolution weight of the second pixel is determined by specifying a substantially non-zero value for the first convolution weight of the second pixel if the backward kernel assigns a substantially non-zero backward weight to the first pixel.

43.   (New) The system of claim of claim 42, wherein the non-zero value for the first convolution weight of the second pixel is a predetermined value.

44.   (New) The system of claim of claim 42, wherein the non-zero value for the first convolution weight of the second pixel is a forward weight assigned to the second pixel by the forward kernel.

45.   (New) The system of claim of claim 39, wherein the local attribute of the image at the second pixel is a depth value corresponding to a distance of an object represented by the second pixel relative to a focal distance.

46.   (New) The system of claim of claim 45, wherein the filter is configured to receive user input specifying a depth map assigning a depth value to each pixel in the image.

47.   (New) The system of claim of claim 39, wherein the local attribute of the image at the second pixel is a luminance value.

48.   (New) The system of claim of claim 39, wherein the received forward kernel is operable to blur the image at the first pixel.

49.   (New) The system of claim of claim 48, wherein the specified backward kernel is operable to blur the image at the second pixel.

50.   (New) The system of claim of claim 39, wherein the received forward kernel is operable to sharpen the image at the first pixel.

51.   (New) The system of claim of claim 39, wherein the forward kernel centered at the first pixel is received by receiving an array of forward weights, each forward weight in the array being assigned to a pixel in the neighborhood surrounding the first pixel.

52.   (New) The system of claim of claim 39, wherein the forward kernel centered at the first pixel is received by receiving a kernel function having a kernel location at the first pixel and specifying a forward weight to each pixel in the neighborhood surrounding the first pixel based on a distance between the kernel location and the pixel in the neighborhood.

53.   (New) The system of claim of claim 52, wherein the kernel function depends on a kernel radius, and, specifying the backward kernel centered at the second pixel includes determining a kernel radius based on the local attribute of the image at the second pixel and specifying the backward kernel by the kernel function with the determined kernel radius and a kernel location at the second pixel.

54.   (New) The system of claim of claim 39, wherein the filter is further configured to: specify one or more further backward kernels, each of the further backward kernels being

centered at a corresponding further pixel within the neighborhood surrounding the first pixel and assigning backward weights to pixels in a neighborhood surrounding the corresponding further pixel, each of the further backward kernels being based on a local attribute of the image at the corresponding further pixel;

determine a second convolution weight of each further pixel based on the corresponding backward kernel and the forward kernel; and

use the second convolution weight and a pixel value of each further pixel to generate the new value of the first pixel.